

# Notice No.3

## Rules and Regulations for the Construction and Classification of Ships for the Carriage of Liquefied Gases in Bulk, July 2016

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: June 2017

Amendments to	Effective date	Mandatory Instrument
Chapter 3, LR 3.15 & 3.16	1 July 2017	X

## Chapter 3 Ship Arrangements

### LR 3.15 Deck plating

**LR 3.15-01** The thickness of deck plating is to comply with the requirements of *Table LR 3.1 Deck plating and longitudinals* together with the hull buckling strength requirements in Pt 3, Ch 4.7. The thickness of deck plating of the fore and aft end structures are to be not less than required by Pt 3, Ch 5.2.2 and Pt 3, Ch 6.2.2. Increased scantlings may be required where local deflections of the structure could influence the behaviour of the cargo containment system and in way of anti-roll chocks, anti-flotation chocks or other similar items.

(Part only shown)

**Table LR 3.1 Deck plating and longitudinals**

Item, see Fig. LR 3.4	Requirement
Symbols	
$L, k, k_L, s, S$ as defined in Pt 4, Ch 1.1.5.1 $F_D$ as defined in Pt 3, Ch 4.5.7 $\rho$ = relative density (specific gravity) of liquid carried in a tank but is not to be taken less than 1,025 $F_1 = 0,25c_1$ $c_1 = \frac{60}{225 - 165F_D}$ $h_{T1}$ = greater of $\frac{L_1}{70}$ or 1,20 m $h_4$ = tank head as defined in Pt 3, Ch 3.5 $l_e$ = effective length of stiffening member, in metres, but not to be taken less than 1,5 m, see Pt 3, Ch 3.3 $L_1 = L$ but need not be taken greater than 190 m $s_1 = s$ , but not to be taken less than the smaller of $470 + \frac{L}{0,6}$ mm or 700 mm $t_c = 1$ mm, if space is void space $t_c = 2$ mm, if space is for ballast water $f = 1,1 - \frac{s}{2500S}$ but not to be taken greater than 1,0 $\gamma$ = see <i>Table LR 3.2</i>	
<b>NOTES</b> 1. The deck thickness is to be not less than the basic strength deck end deck thickness for taper as given in Pt 3, Ch 5.2 and Ch 6.2, but $L$ need not be taken greater than 300 m. <i>Pt 3, Ch 3, Table 3.2.1 Taper requirements for hull envelope.</i> 2. Where separate maximum sagging and hogging still water moments are assigned, $F_D$ may be based on the maximum sagging moment. 3. For the upper deck $F_D$ may be factored to the actual stress at location. 4. The thickness of deck plating forming the boundary of a ballast tank is not to be less than that required by Table 1.4.1(3) in Pt 4, Ch 1.	

### LR 3.16 Shell plating

**LR 3.16-01** The scantlings of the shell envelope are to comply with the requirements of *Table LR 3.2 Bottom shell, bilge and side shell plating and longitudinals* together with the hull buckling strength requirements in Pt 3, Ch 4.7. Increased scantlings may be necessary to meet local strength requirements. The scantlings of the keel, bottom and side shell plating of the fore and aft end structures are to be not less than required by Pt 3, Ch 5.3 and Pt 3, Ch 6.3.

(Part only shown)

**Table LR 3.2 Bottom shell, bilge and side shell plating and longitudinals**

Item, see Fig. LR 3.4	Requirement
<b>NOTES</b> 1. The bottom shell, bilge and side shell plating thickness is to be not less than the basic shell end thickness for taper as given in Pt 3, Ch 5.3 and Ch 6.3, but $L$ need not be taken greater than 300 m. <i>Pt 3, Ch 3, Table 3.2.1 Taper requirements for hull envelope.</i> The basic shell end thickness for taper applied to the midship region bottom shell, bilge and side shell plating need not be taken greater than 16 mm. 2. The ratio of the web depth, $d_w$ , to web thickness, $t$ , is to comply with the following requirements: (a) Built-up profiles and rolled angles: $\frac{d_w}{t} < 60\sqrt{k_L}$ (b) Flat bars: $\frac{d_w}{t} \leq 18\sqrt{k_L}$ when continuous at bulkheads $\frac{d_w}{t} \leq 15\sqrt{k_L}$ when non-continuous at bulkheads 3. Where struts are fitted midway between transverses in way of double bottom tanks, or double skin construction, the modulus of the bottom or side longitudinals may be reduced by 50k per cent from that obtained from the locations (3), (4), or (5) as applicable.	

4. Where the bilge radius exceeds the Rule height of a double bottom the modulus of the longitudinal above this nominal height is to be derived from the location (4) or (5) as applicable.
5. Where no bilge longitudinals are fitted and bilge brackets are required by location (3) in Pt 4, Ch 1, Table 1.5.2, at least two brackets are to be fitted.

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